The California Deployment of Wireless Enhanced 9-1-1

Northern Region Presentation

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Telecommunications Division, Department of General Services

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Agenda

- Background
- Wireless E9-1-1 Technology
- Deployment Status
- PSAP Readiness/ GIS Funding
- Current Issues
- Project Information
- Q&A

Background
Wireless Statistics

- Cellular Subscribers grew from 16 million in 1994 to 207.9 million in 2006 (69%).
- 6% of US households are “wireless only.”
- In CA in 2005, of the 20 million 9-1-1calls, more than half were wireless.

Background
FCC Order & CA Statutes

- FCC Order 94-102
  - Wireless Service Providers (WSPs) must be ready to deliver:
    - » Phase I - Callback Number, Cell Site & Sector
    - » Phase II - Latitude and longitude coordinates.
  - Timelines vary by WSP, but all must be fully Phase II compliant by end of 2005.
  - http://www.fcc.gov/911/enhanced/
- CPUC Section 2892

Background
CA W E9-1-1Stakeholders

- 475 Local Wire-line PSAPS "Enhanced 9-1-1"
- 24 CHP Centers
  - No ANI/ALI (7-digit PSTN with "Caller ID")
- 15 Wireless Carriers (6 Major)
- 2 Data Base Providers – Intrado, TCS
- 3 Landline E9-1-1 Providers – AT&T, Verizon, Frontier
- Wireless Regional Coordinators

Regional Coordinators' Duties

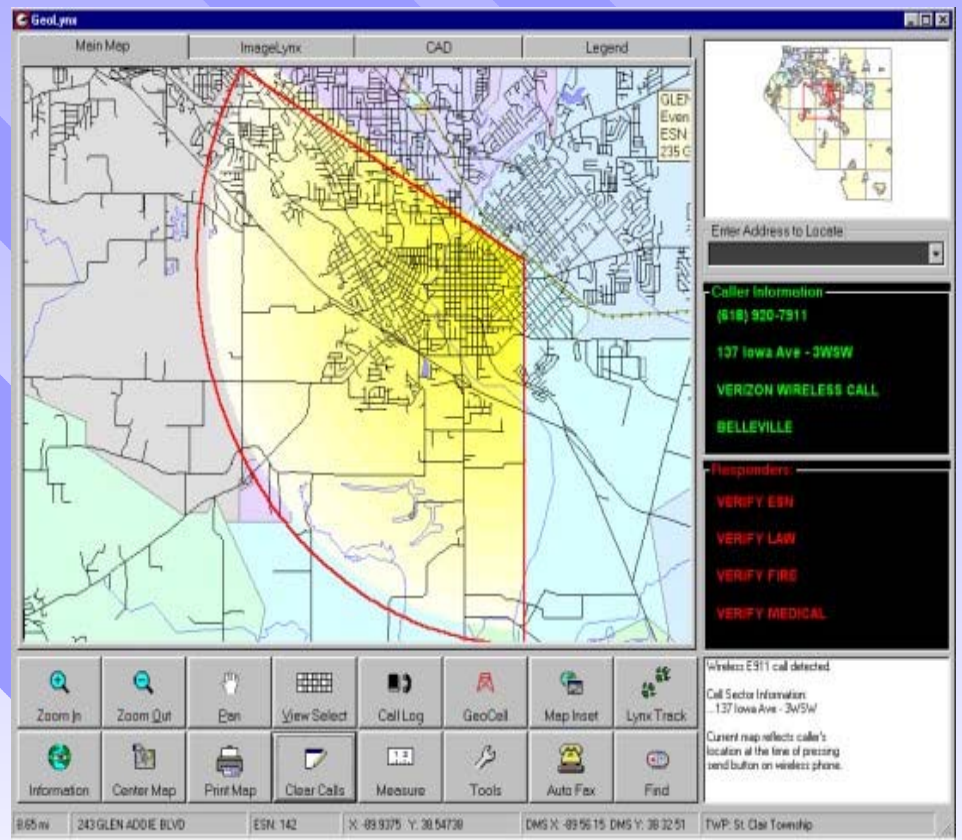
- Schedule routing meetings.
- Keep PSAPs informed of the schedule.
- Schedule network and drive testing with the WSPs.
- Liason with the WSPs, State 9-1-1 office, the LECs, Database providers and the PSAPs.

What Is "Wireless E9-1-1"?

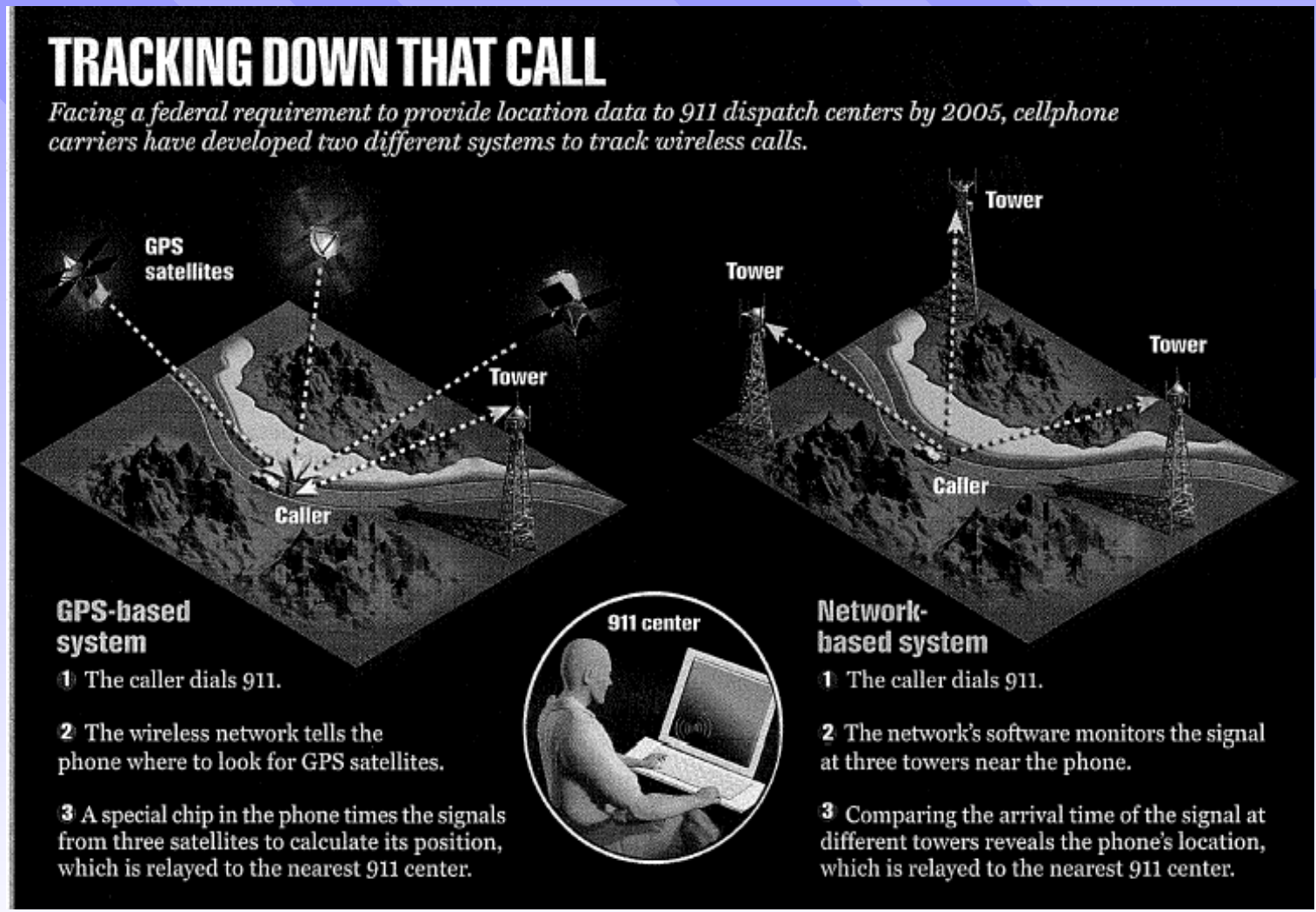
- Wire-line E9-1-1
  - ANI + ALI + Selective Routing
  - Other Features - telltales, selective transfer, et.al.
- Wireless Phase I
  - Callback Phone Number (ANI) + Cell Sector (with routing based on cell sector) and other stuff.
- Wireless Phase II
  - Adds Precise Location Information (in form of X/Y coordinate) and sometimes uncertainty and confidence.

Wireless Phase I Call Information

- **The Phase I lat/long coordinates display the cell site location.**
- **The caller's location is probably within a cell sector of that site.**
- **Cell site in urban areas have a range of about one mile although they can extend significantly farther.**

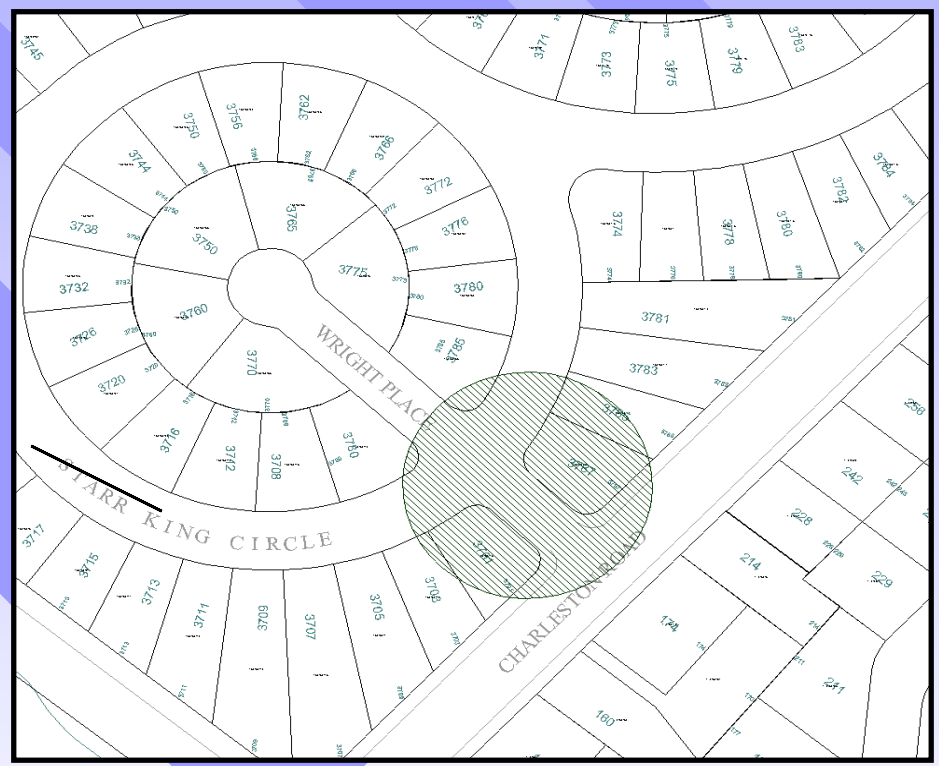


Phase II Wireless Technologies

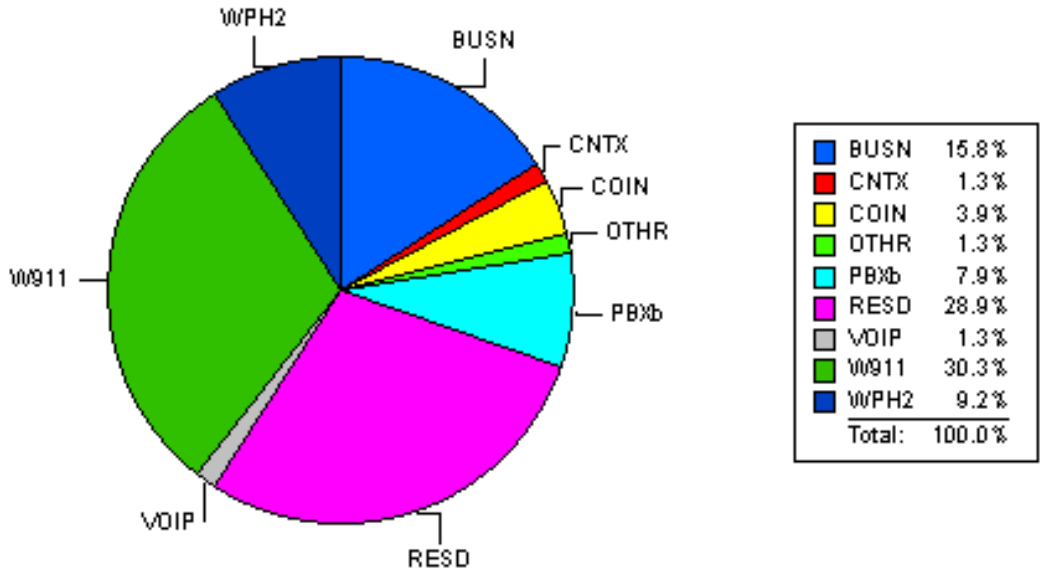


Wireless Phase II Call Information

- **The Phase II lat/long coordinates display the more accurate location of the caller.**
- **The caller's actual location will be within a radius in meters from the lat/long.**
- **That radius is indicated in the uncertainty field**



CA E 9-1-1 Call Types



PSAP: **1217** **Mountain View Police**

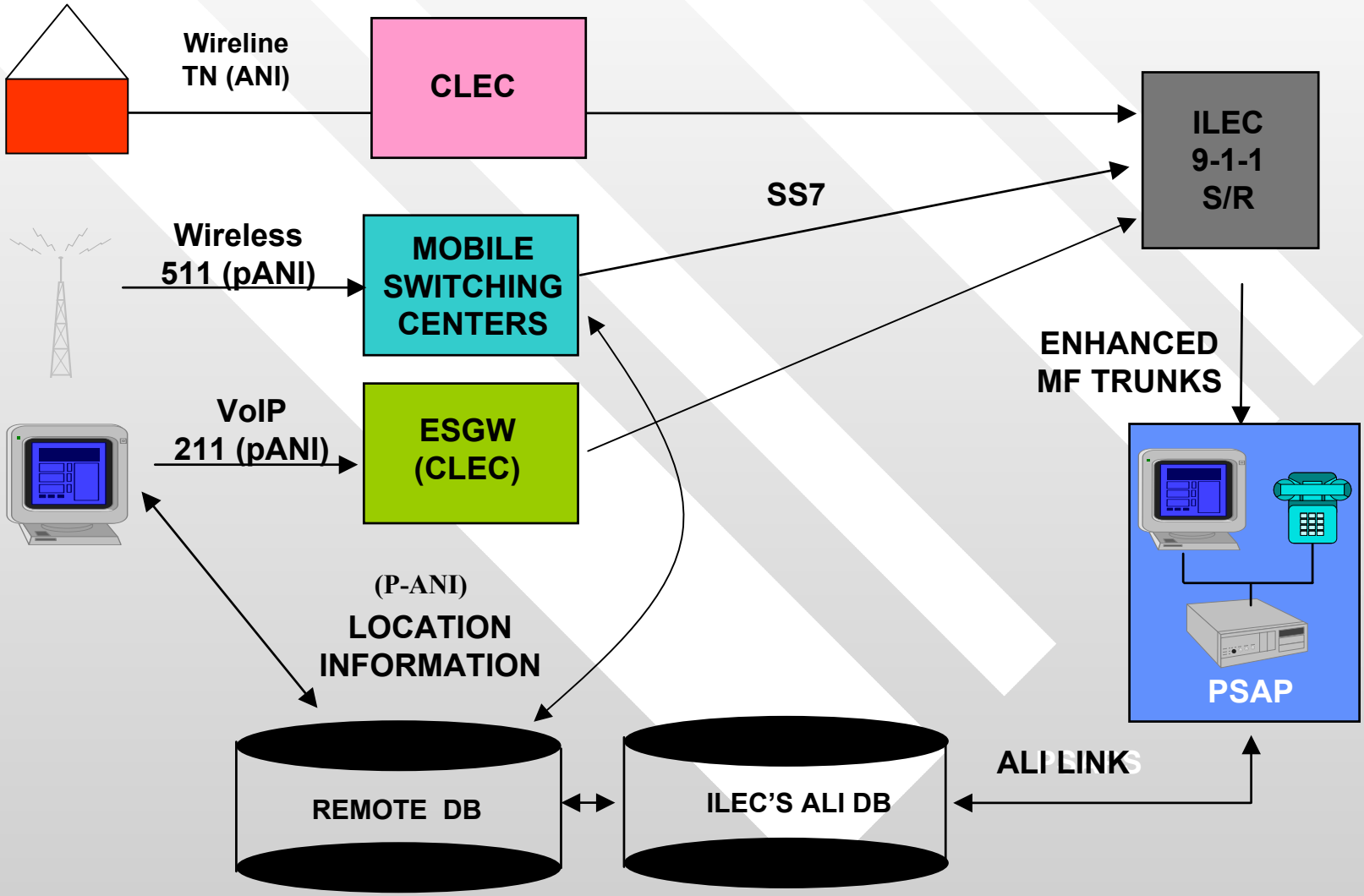
3/27/2006

Source Phone Type

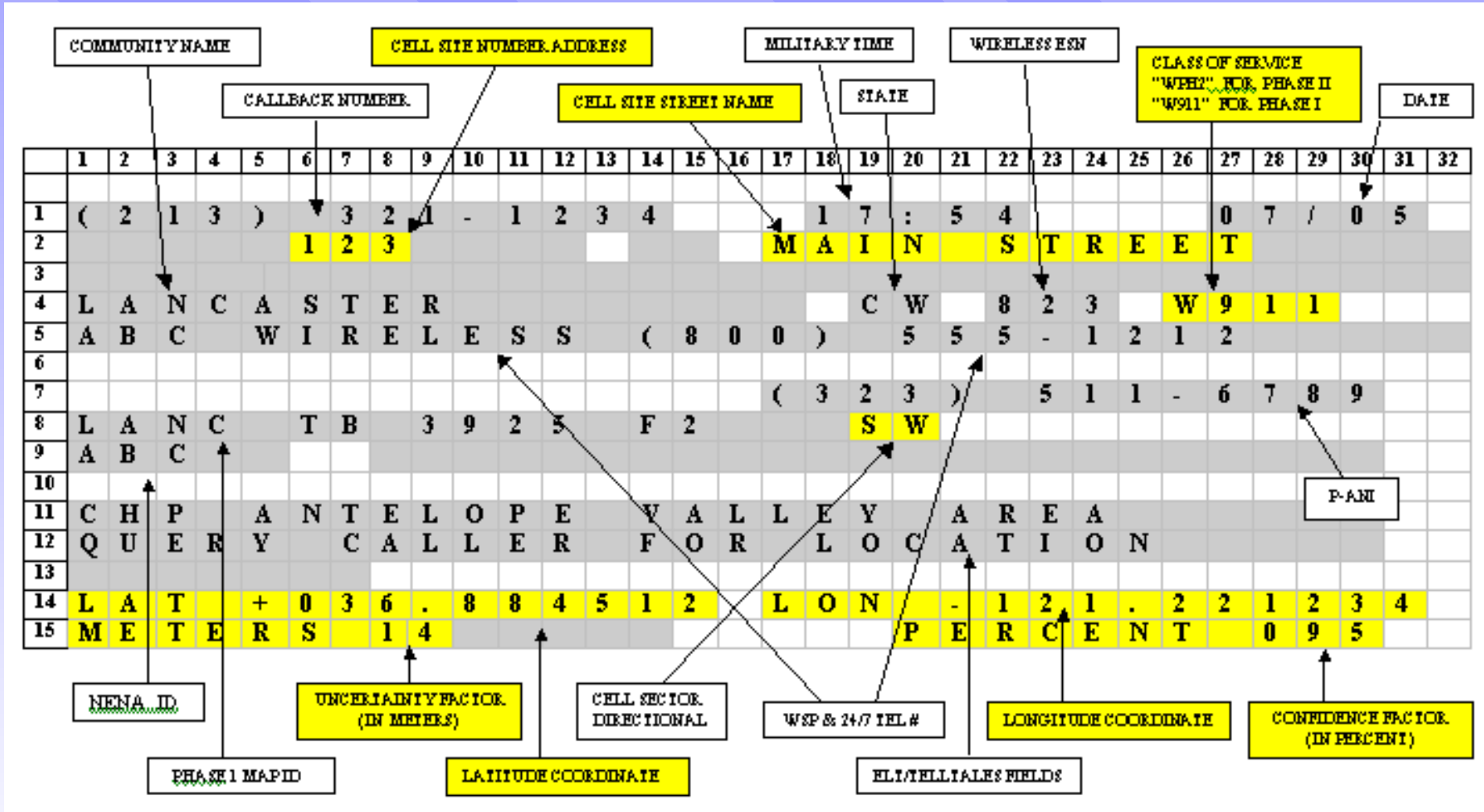
911 Calls

	BUSN	CNTX	COIN	OTHR	PBXb	RESD	VOIP	W911	WPH2	Total
3/27/06	12	1	3	1	6	22	1	23	7	76
Total	**12**	**1**	**3**	**1**	**6**	**22**	**1**	**23**	**7**	**76**

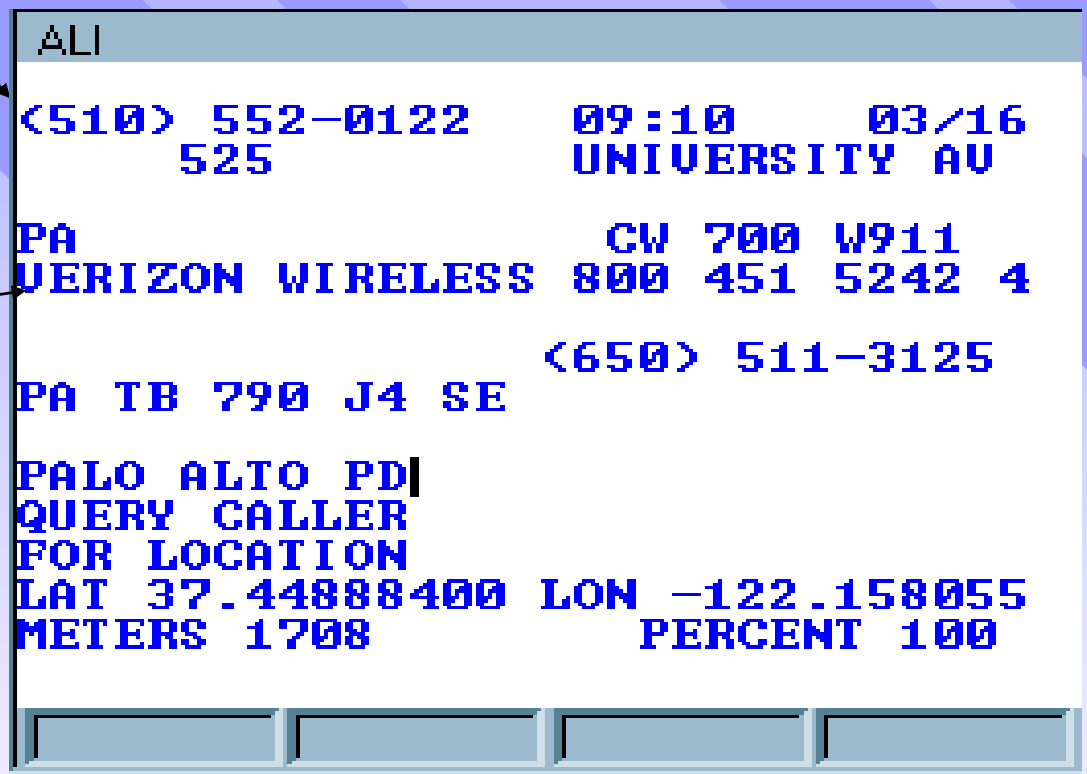
CA E9-1-1Network Overview



CA Wireless E9-1-1 ALI Display



Phase I ALI Display



Subscriber's Number

Wireless Service Provider and 24 X 7 contact number

Cell Site Address

Class of Service

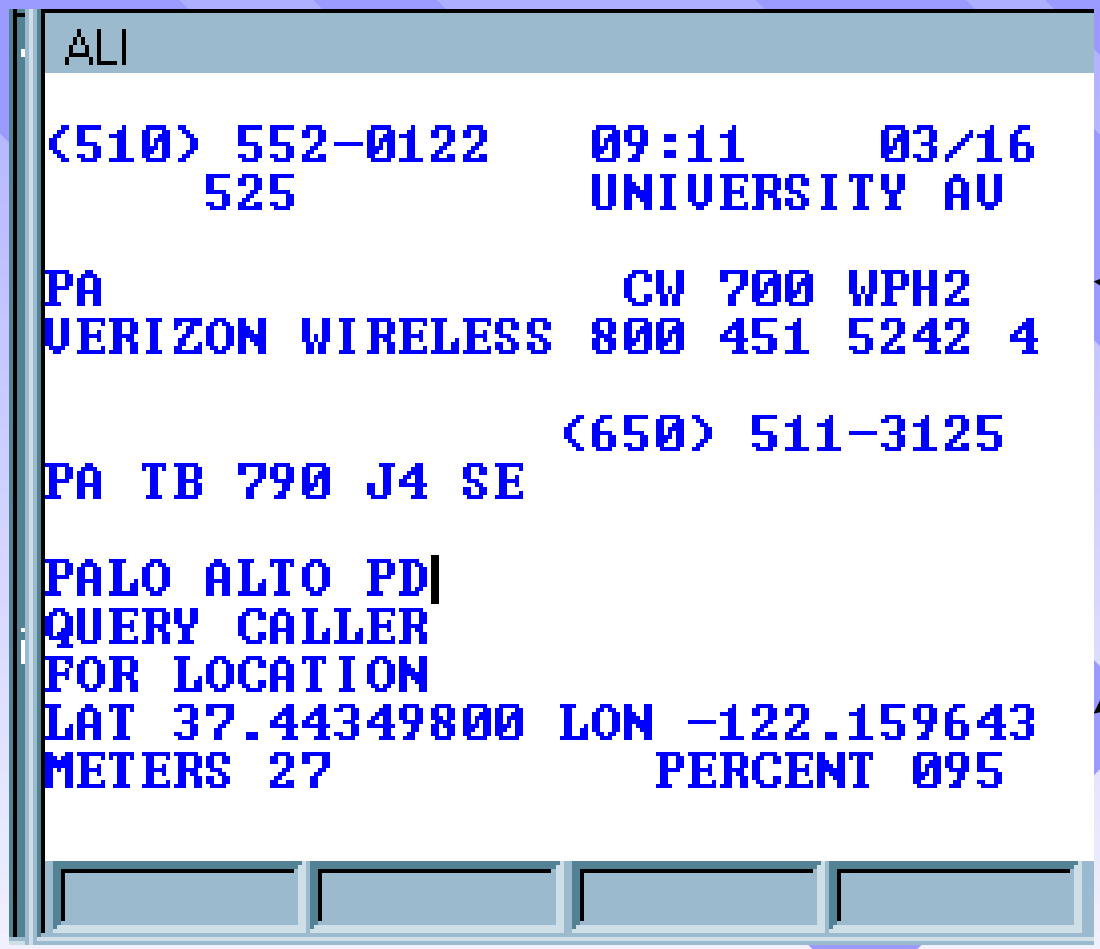
Lat/Long of Cell Site

Thomas Brother's Map location of Cell Site

Uncertainty in meters

Confidence in Percent

Phase II ALI Display



Subscriber's Number

Cell Tower address

Class of Service

Latitude / Longitude

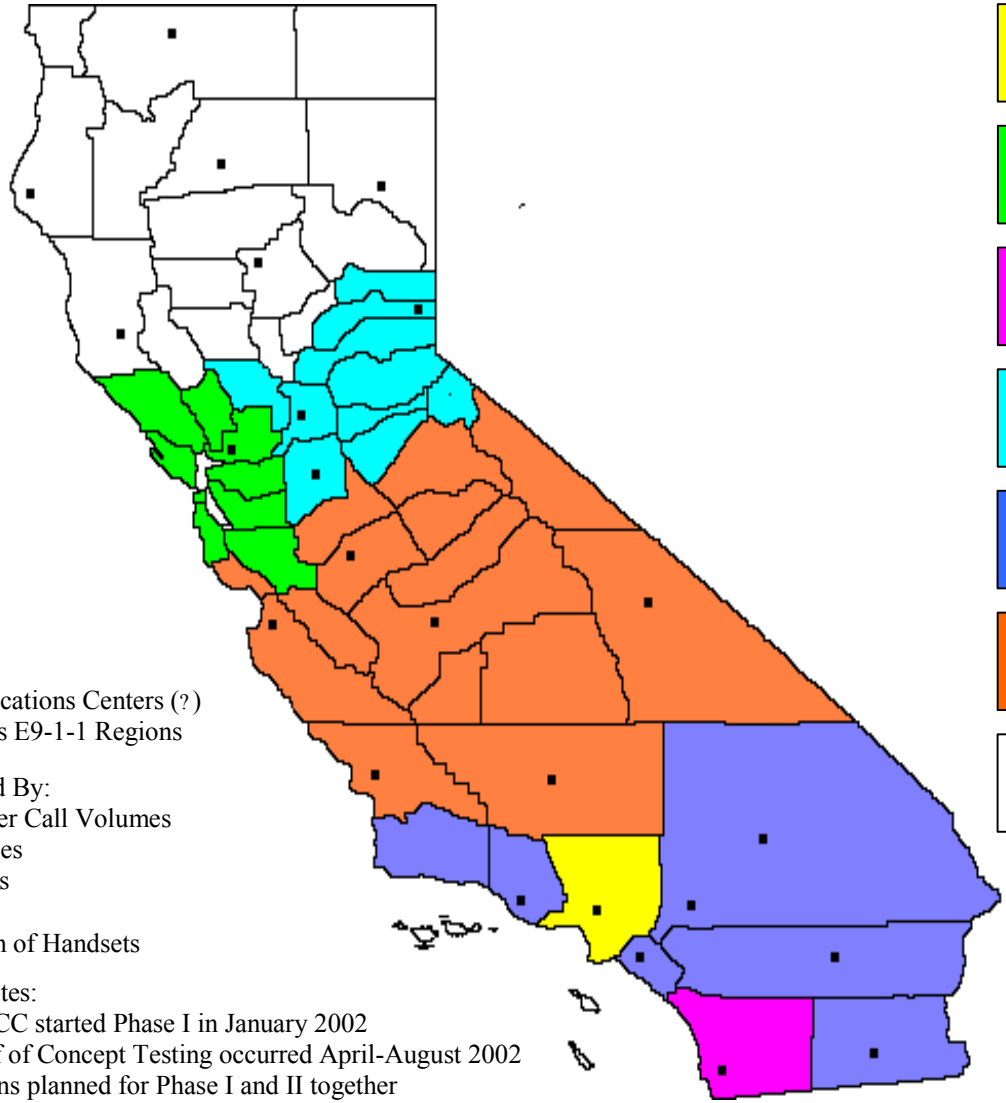
Location of Caller

Confidence in Percentage

Uncertainty in Meters

DGS, Telecommunications Division
State 9-1-1 Office

State of California
Wireless E9-1-1 Statewide Plan Map



Los Angeles Region
Started 1st Quarter 2003

San Francisco Bay Area Region
Started 3rd Quarter 2003

San Diego Region
Started 2nd Quarter 2004

Sacramento Region
Started 4th Quarter in 2004

Southland Region
Started 1st Quarter 2005

Central Region
Projected to Start 1st Quarter 2006

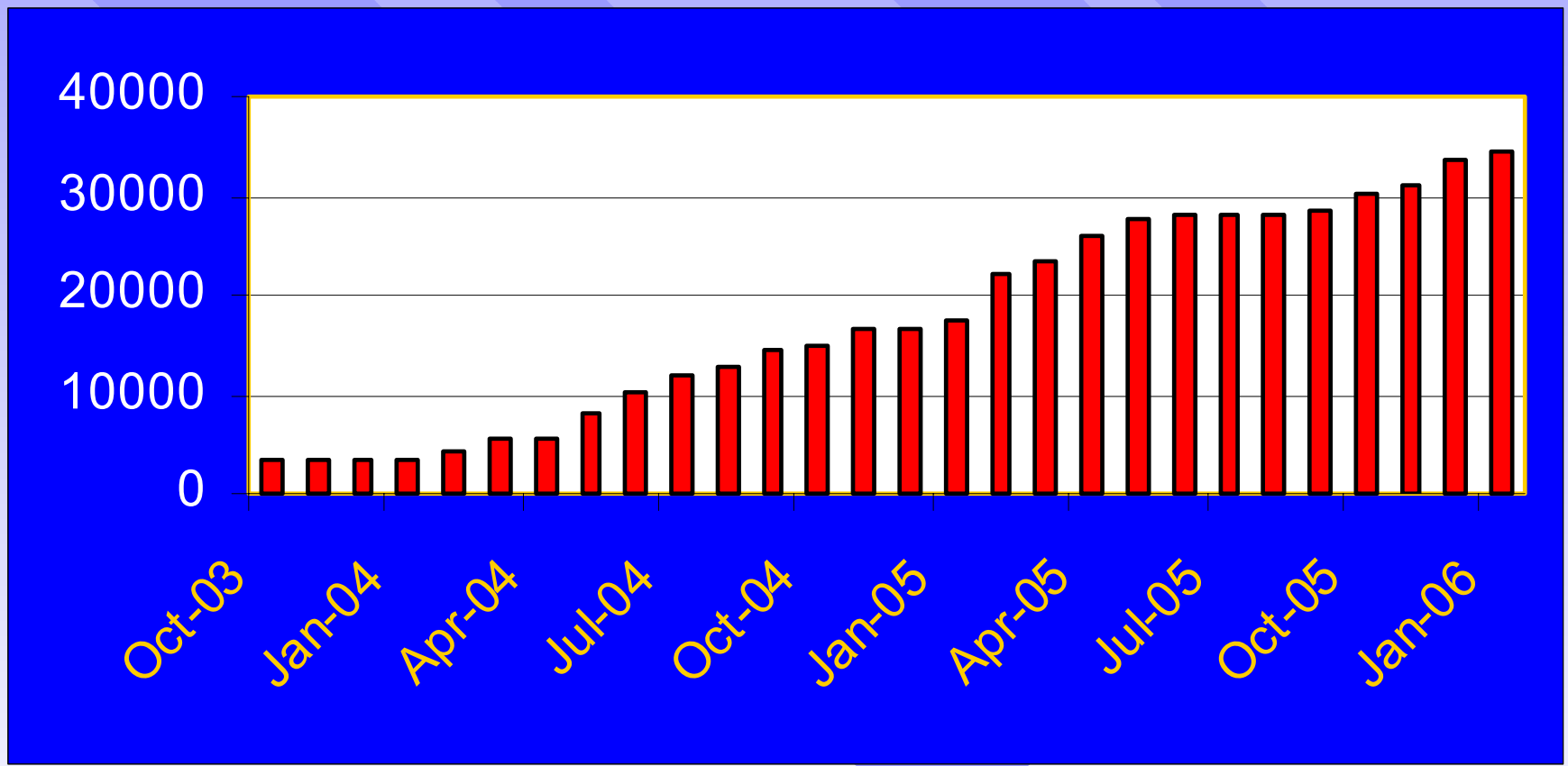
Northern Region
Projected to Start in 2006

Map Depicts:
-58 Counties
-24 CHP Communications Centers (?)
-7 Defined Wireless E9-1-1 Regions

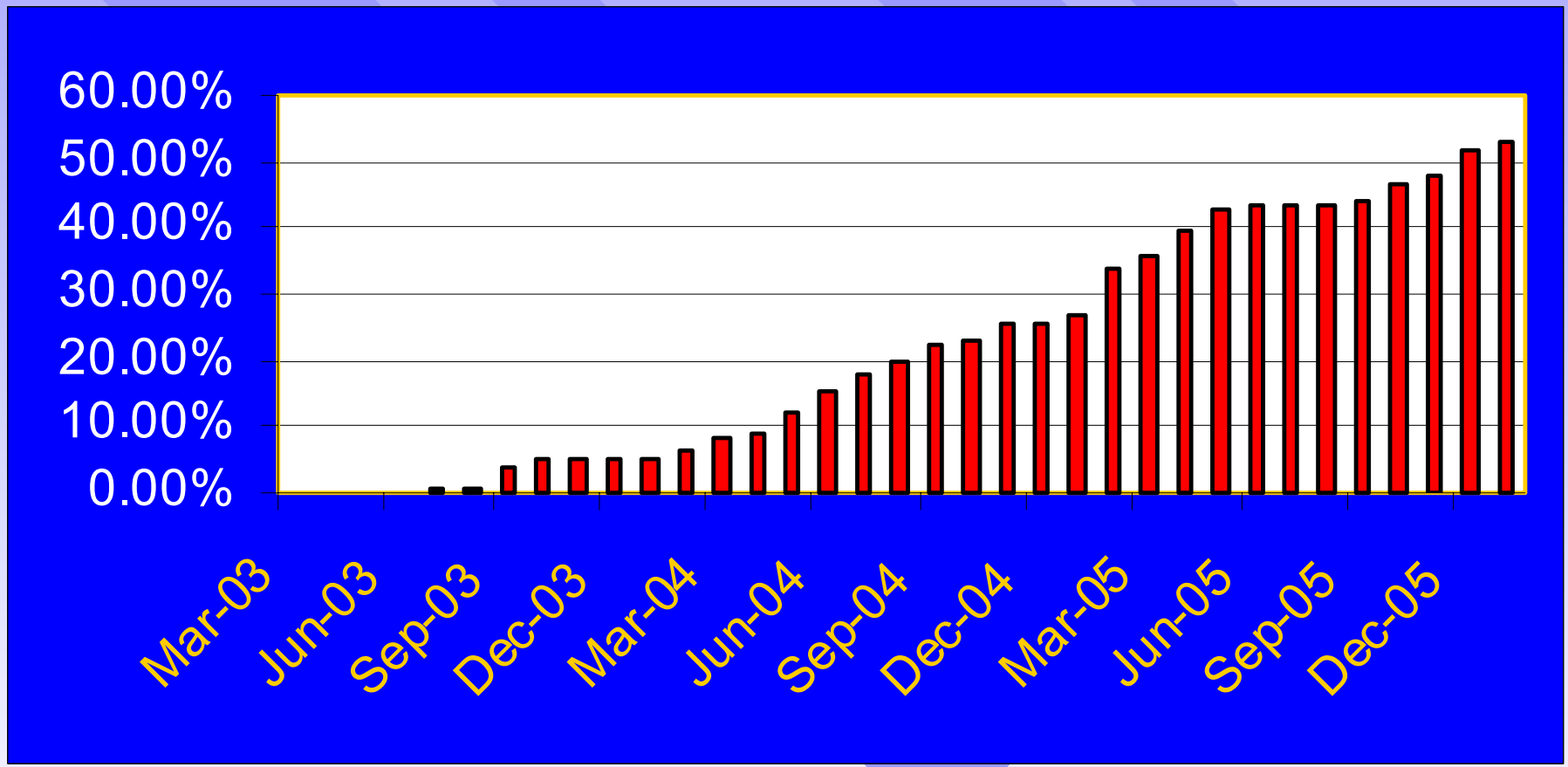
Rollout Determined By:
-CHP Comm. Center Call Volumes
-Population Densities
-Network Readiness
-PSAP Readiness
-Market Penetration of Handsets

Implementation Notes:
-San Francisco CECC started Phase I in January 2002
-Los Angeles Proof of Concept Testing occurred April-August 2002
-All implementations planned for Phase I and II together
-Date indicates start of deployment

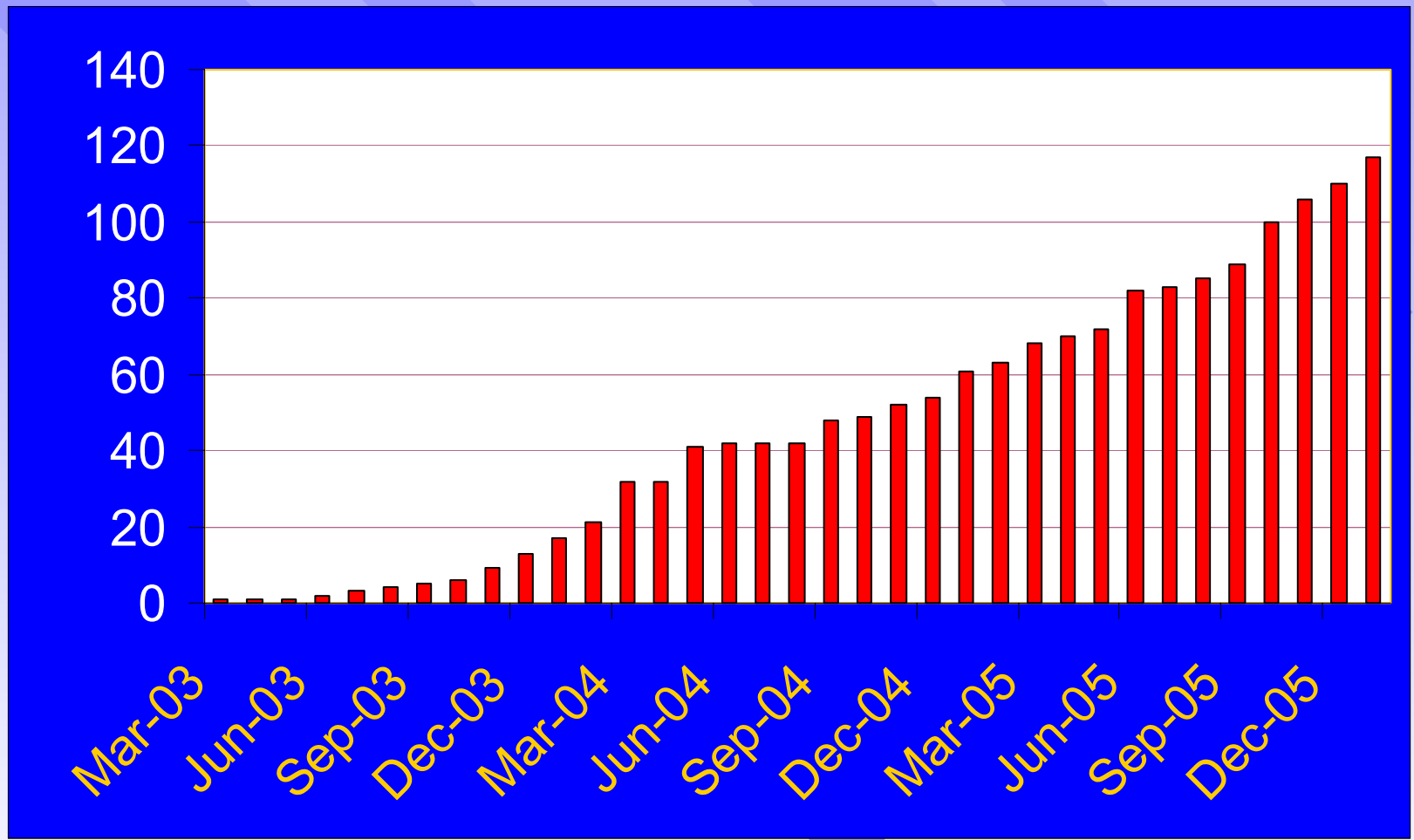
CA Cell Sector Cuts by Year



Percent Complete by Month



PSAPs Deployed by Year



Primary PSAPs	Wireless Region	Cingular (ATTWS) Sectors Cut	T-Mobile Sectors Cut	Nextel Sectors Cut	Sprint PCS Sectors Cut	Verizon Wireless Sectors Cut	Other WSP Sectors Cut	Total Sectors Cut to Wireless E9-1-1	Approx. Percent Complete of Region	Approx. Percent Complete of State
CHP Comm. Centers (Statewide Totals):		11491	990	2502	3516	5524	851	24874	n/a	38.27%
Los Angeles	Los Angeles	4719	0	1619	1226	2321	0	9885	65.90%	15.21%
Golden Gate (Vallejo)	SF Bay Area	4201	990	371	1583	902	472	8519	56.79%	13.11%
Border (San Diego)	San Diego	1235	0	484	633	504	0	2856	47.60%	4.39%
Orange County	Southland	653	0	0	0	337	0	990	6.60%	1.52%
Inland (San Bernardino)	Southland	683	0	0	0	561	0	1244	8.29%	1.91%
Vertura	Southland									
Stockton	Sacramento	0	0	0	5	216	90	311	5.18%	0.48%
Sacramento	Sacramento	0	0	0	31	628	289	948	15.80%	1.46%
Fresno	Central									
Bakersfield	Central									
Truckee	Sacramento	0	0	28	38	55	0	121	2.02%	0.19%
Indio	Southland									
Barstow	Southland									
ElCentro	Southland									
Merced	Central									
Monterey	Central									
San Luis Obispo	Central									
Bishop	Central									
Chico	Northern									
Redding	Northern									
Ukiah	Northern									
Humboldt (Eureka)	Northern									
Yreka	Northern									
Susanville	Northern									
Local* Primary PSAPs (Statewide Totals):		4735	1152	555	1141	1845	183	9588	n/a	14.75%
Local PSAPs in Region	Los Angeles	723	84	187	183	340	0	1517	10.11%	2.33%
Local PSAPs in Region	SF Bay	1632	556	94	612	384	180	3435	22.90%	5.28%
Local PSAPs in Region	San Diego	852	495	274	334	325	0	2280	38.00%	3.51%
Local PSAPs in Region	Sacramento	41	0	0	12	33	3	89	1.48%	0.14%
Local PSAPs in Region	Southland	1487	17	0	0	763	0	2267	15.11%	3.49%
Local PSAPs in Region	Central								0.00%	0.00%
Local PSAPs in Region	Northern								0.00%	0.00%
Statewide Totals (CHP + Local PS		16226	2142	3057	4657	7369	1034	34462	n/a	53.02%

PSAP Readiness

- CPE - Phase II Compatibility
  - Accommodate W-ALI Display (Format 03 or 04)
  - 10/20 Digit Capable
  - Ability to Re-Bid ALI for Phase II & Location Updates
- CAD Interface
  - Will CAD accommodate new W-ALI Format?
  - Fallback is to receive Phase I only.
  - Can be funded out of GIS allotment.
- GIS
  - Not required to be considered ready.
  - PSAP must submit GIS Plan to obtain funding.

GIS Funding

Geographical Information Systems

- Usually a 3-Step Process for PSAPs.
- Step 1 – Receive letter of funding eligibility
- Step 2 – Submit GIS spending plan to State
  - Scope, resources, timelines, and itemized costs
  - State Office is developing GIS plan template.
- Step 3 – Document expenditures against plan

(GIS should differentiate between Phase I & II.)

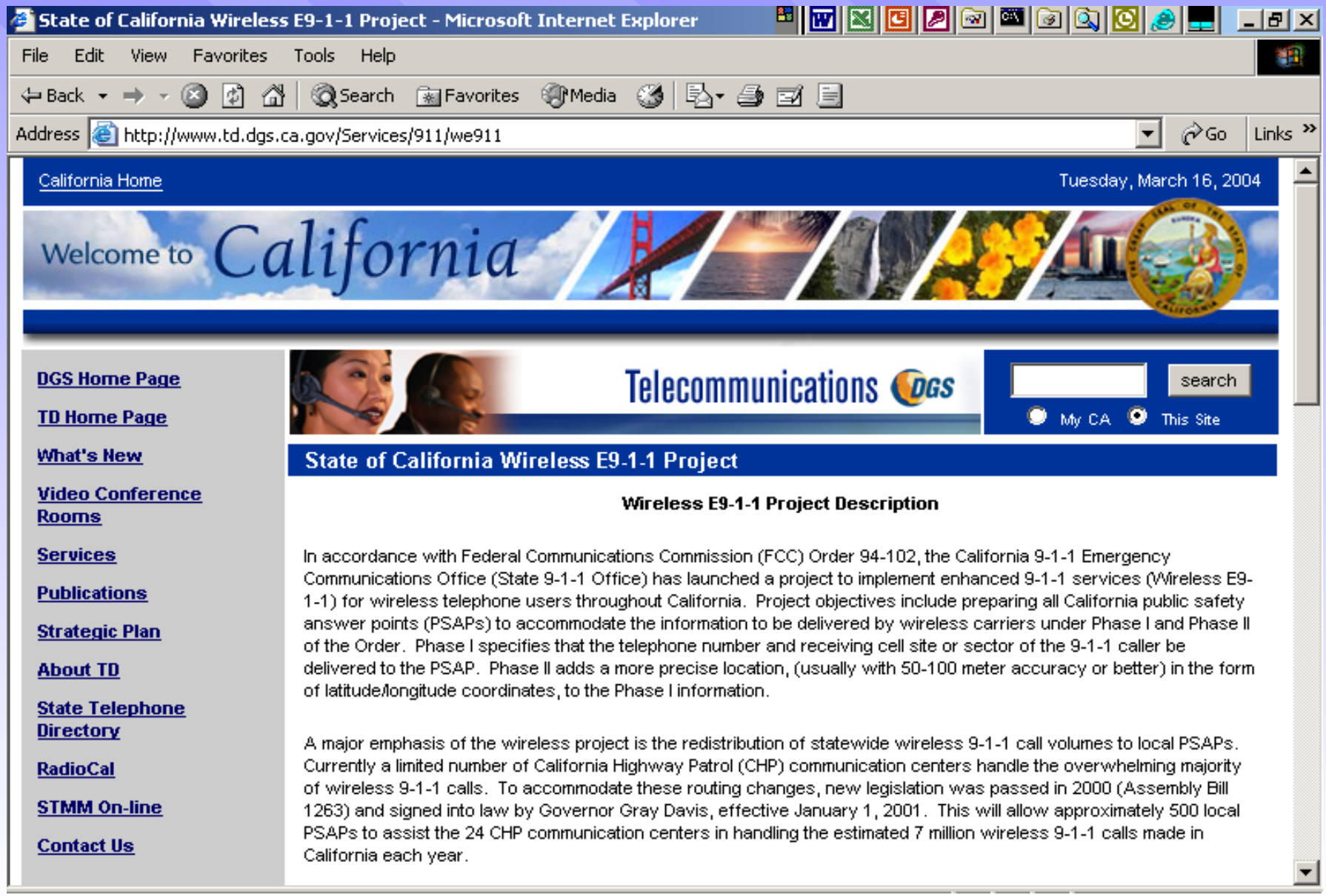
Current Issues

- New State Call Routing Law (1/06)
- Participation of Local Agencies
- PSAP E9-1-1 Upgrades
- ILEC/WSP 9-1-1 Network Design
- Deployment Scheduling

Wireless E9-1-1 Benefits

- Better information (ANI w Mapped ALI) means faster call processing/dispatching.
- Shares load amongst all 500 PSAPS in state.
- X,Y coordinates allow for GIS (Geographical Information System) map displays at PSAPs.
- Perhaps Phase II Routing - Delivery of wireless calls to correct PSAP based on precise location.

CA Wireless E9-1-1 Web Page



Contact Information

CA 9-1-1 Emergency Communications Office
Wireless E9-1-1 Project Web Page:
http://www.td.dgs.ca.gov/Services/911/we911

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